BT-4/M-24   44183

OPERATING SYSTEM
Paper : PC-IT-206A

Time : Three Hours]   [Maximum Marks : 75

Note : Attempt *Five* questions in all by selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) What do you mean by Operating System ? Explain objectives and functions of operating system.   **8**

    (b) What do you mean by PCB ? What are different elements of PCB ?   **7**

2. (a) Explain different types of real time operating system using suitable example.   **5**

    (b) Consider the set of 5 processes whose arrival time and burst time are given below :

Process Id	Arrival time	Burst time
P1	3	1
P2	1	4

P3	4	2
P4	0	6
P5	2	3

If the CPU scheduling policy is SJF non-preemptive, calculate the average waiting time and average turnaround time. **10**

Unit II

3. (a) What is Producer-Consumer problem ? Explain in detail using suitable example. **7**

   (b) What do you mean by race condition ? How do they occur ? Explain using suitable example. **8**

4. What is deadlock ? What are the necessary conditions for deadlock occurred ? Discuss deadlock avoidance algorithm along with its pros and cons. **15**

Unit III

5. (a) What is fragmentation ? Differentiate between internal and external fragmentation using a suitable example. **7**

   (b) What is paging ? Why is it used ? How protection is possible in paging ? **8**

6. (a) What is page fault ? Write steps to handle the page fault. Explain optimal page replacement algorithm using suitable example. 10

(b) What is thrashing ? Differentiate between global page replacement and local page replacement. 5

Unit IV

7. (a) What is file ? Explain in detail the different methods of file allocation. 10

(b) Write a short note on NFS architecture and protocol ? 5

8. (a) Explain the steps that take place during remote procedure call between two networked systems. 10

(b) Write a short note on distributed file system. 5